

# SEQUENCE LISTING

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 WANG, Jian  
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 ZUCKERMAN, Steven Harold



B1 <120> THERAPEUTIC APPLICATIONS OF mFLINT POLYPEPTIDES

<130> 040902/0136

<140> US 09/280,567

<141> 1999-03-30

<150> US 60/113,407

<151> 1998-12-22

<150> US 60/112,933

<151> 1998-12-18

<150> US 60/112,703

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<150> US 60/112,577

<151> 1998-12-17

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<151> 1998-09-09

<150> US 60/086,074

<151> 1998-05-20

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<151> 1998-03-30

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<170> PatentIn Ver. 2.0

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| gcg ctg cct gcc ctg ctg ccg gtg ccg gct gta cgc gga gtg gca gaa | 96  |
| Ala Leu Pro Ala Leu Leu Pro Val Pro Ala Val Arg Gly Val Ala Glu |     |
| 20 25 30  |     |
| aca ccc acc tac ccc tgg cgg gac gca gag aca ggg gag cgg ctg gtg | 144 |
| Thr Pro Thr Tyr Pro Trp Arg Asp Ala Glu Thr Gly Glu Arg Leu Val |     |
| 35 40 45  |     |
| tgc gcc cag tgc ccc cca ggc acc ttt gtg cag cgg ccg tgc cgc cga | 192 |
| Cys Ala Gln Cys Pro Pro Gly Thr Phe Val Gln Arg Pro Cys Arg Arg |     |
| 50 55 60  |     |
| gac agc ccc acg acg tgt ggc ccg tgt cca ccg cgc cac tac acg cag | 240 |
| Asp Ser Pro Thr Thr Cys Gly Pro Cys Pro Pro Arg His Tyr Thr Gln |     |
| 65 70 75 80   |     |
| ttc tgg aac tac ctg gag cgc tgc cgc tac tgc aac gtc ctc tgc ggg | 288 |
| Phe Trp Asn Tyr Leu Glu Arg Cys Arg Tyr Cys Asn Val Leu Cys Gly |     |
| 85 90 95  |     |
| gag cgt gag gag gag gca cgg gct tgc cac gcc acc cac aac cgt gcc | 336 |
| Glu Arg Glu Glu Glu Ala Arg Ala Cys His Ala Thr His Asn Arg Ala |     |
| 100 105 110   |     |
| tgc cgc tgc cgc acc ggc ttc ttc gcg cac gct ggt ttc tgc ttg gag | 384 |
| Cys Arg Cys Arg Thr Gly Phe Phe Ala His Ala Gly Phe Cys Leu Glu |     |
| 115 120 125   |     |
| cac gca tgc tgt cca cct ggt gcc ggc gtg att gcc ccg ggc acc ccc | 432 |
| His Ala Ser Cys Pro Pro Gly Ala Gly Val Ile Ala Pro Gly Thr Pro |     |
| 130 135 140   |     |
| agc cag aac acg cag tgc cag ccg tgc ccc cca ggc acc ttc tca gcc | 480 |
| Ser Gln Asn Thr Gln Cys Gln Pro Cys Pro Pro Gly Thr Phe Ser Ala |     |
| 145 150 155 160   |     |
| agc agc tcc agc tca gag cag tgc cag ccc cac cgc aac tgc acg gcc | 528 |
| Ser Ser Ser Ser Ser Glu Gln Cys Gln Pro His Arg Asn Cys Thr Ala |     |
| 165 170 175   |     |
| ctg ggc ctg gcc ctc aat gtg cca ggc tct tcc tcc cat gac acc ctg | 576 |
| Leu Gly Leu Ala Leu Asn Val Pro Gly Ser Ser Ser His Asp Thr Leu |     |
| 180 185 190   |     |
| tgc acc agc tgc act ggc ttc ccc ctc agc acc agg gta cca gga gct | 624 |
| Cys Thr Ser Cys Thr Gly Phe Pro Leu Ser Thr Arg Val Pro Gly Ala |     |
| 195 200 205   |     |
| gag gag tgt gag cgt gcc gtc atc gac ttt gtg gct ttc cag gac atc | 672 |

Glu Glu Cys Glu Arg Ala Val Ile Asp Phe Val Ala Phe Gln Asp Ile  
 210 215 220  
 tcc atc aag agg ctg cag cgg ctg ctg cag gcc ctc gag gcc ccg gag 720  
 Ser Ile Lys Arg Leu Gln Arg Leu Leu Gln Ala Leu Glu Ala Pro Glu  
 225 230 235 240  
 ggc tgg ggt ccg aca cca agg gcg ggc cgc gcg gcc ttg cag ctg aag 768  
 Gly Trp Gly Pro Thr Pro Arg Ala Gly Arg Ala Ala Leu Gln Leu Lys  
 245 250 255  
 ctg cgt cgg cgg ctc acg gag ctc ctg ggg gcg cag gac ggg gcg ctg 816  
 Leu Arg Arg Arg Leu Thr Glu Leu Leu Gly Ala Gln Asp Gly Ala Leu  
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 ctg gtg cgg ctg ctg cag gcg ctg cgc gtg gcc agg atg ccc ggg ctg 864  
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 Thr Pro Thr Tyr Pro Trp Arg Asp Ala Glu Thr Gly Glu Arg Leu Val  
 35 40 45  
 Cys Ala Gln Cys Pro Pro Gly Thr Phe Val Gln Arg Pro Cys Arg Arg  
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 Asp Ser Pro Thr Thr Cys Gly Pro Cys Pro Pro Arg His Tyr Thr Gln  
 65 70 75 80  
 Phe Trp Asn Tyr Leu Glu Arg Cys Arg Tyr Cys Asn Val Leu Cys Gly  
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 Glu Arg Glu Glu Glu Ala Arg Ala Cys His Ala Thr His Asn Arg Ala  
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 Cys Arg Cys Arg Thr Gly Phe Phe Ala His Ala Gly Phe Cys Leu Glu  
 115 120 125  
 His Ala Ser Cys Pro Pro Gly Ala Gly Val Ile Ala Pro Gly Thr Pro  
 130 135 140

Ser Gln Asn Thr Gln Cys Gln Pro Cys Pro Pro Gly Thr Phe Ser Ala  
145 150 155 160

Ser Ser Ser Ser Ser Glu Gln Cys Gln Pro His Arg Asn Cys Thr Ala  
165 170 175

Leu Gly Leu Ala Leu Asn Val Pro Gly Ser Ser Ser His Asp Thr Leu  
180 185 190

Cys Thr Ser Cys Thr Gly Phe Pro Leu Ser Thr Arg Val Pro Gly Ala  
195 200 205

Glu Glu Cys Glu Arg Ala Val Ile Asp Phe Val Ala Phe Gln Asp Ile  
210 215 220

Ser Ile Lys Arg Leu Gln Arg Leu Leu Gln Ala Leu Glu Ala Pro Glu  
225 230 235 240

Gly Trp Gly Pro Thr Pro Arg Ala Gly Arg Ala Ala Leu Gln Leu Lys  
245 250 255

Leu Arg Arg Arg Leu Thr Glu Leu Leu Gly Ala Gln Asp Gly Ala Leu  
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Ser Leu Leu Cys Leu Val Leu Ala Leu Pro Ala Leu Leu Pro Val Pro  
10 15 20 25

gct gta cgc gga gtg gca gaa aca ccc acc tac ccc tgg cgg gac gca 147  
Ala Val Arg Gly Val Ala Glu Thr Pro Thr Tyr Pro Trp Arg Asp Ala  
30 35 40

gag aca ggg gag cgg ctg gtg tgc gcc cag tgc ccc cca ggc acc ttt 195  
Glu Thr Gly Glu Arg Leu Val Cys Ala Gln Cys Pro Pro Gly Thr Phe  
45 50 55

gtg cag cgg ccg tgc cgc cga gac agc ccc acg acg tgt ggc ccg tgt 243  
Val Gln Arg Pro Cys Arg Arg Asp Ser Pro Thr Thr Cys Gly Pro Cys  
60 65 70

cca ccg cgc cac tac acg cag ttc tgg aac tac ctg gag cgc tgc cgc 291  
Pro Pro Arg His Tyr Thr Gln Phe Trp Asn Tyr Leu Glu Arg Cys Arg  
75 80 85

tac tgc aac gtc ctc tgc ggg gag cgt gag gag gag gca cgg gct tgc 339  
Tyr Cys Asn Val Leu Cys Gly Glu Arg Glu Glu Ala Arg Ala Cys  
90 95 100 105

cac gcc acc cac aac cgt gcc tgc cgc tgc cgc acc ggc ttc ttc gcg 387  
His Ala Thr His Asn Arg Ala Cys Arg Cys Arg Thr Gly Phe Phe Ala  
110 115 120

cac gct ggt ttc tgc ttg gag cac gca tgc tgt cca cct ggt gcc ggc 435  
His Ala Gly Phe Cys Leu Glu His Ala Ser Cys Pro Pro Gly Ala Gly  
125 130 135

gtg att gcc ccg ggc acc ccc agc cag aac acg cag tgc cag ccg tgc 483  
Val Ile Ala Pro Gly Thr Pro Ser Gln Asn Thr Gln Cys Gln Pro Cys  
140 145 150

ccc cca ggc acc ttc tca gcc agc agc tcc agc tca gag cag tgc cag 531  
Pro Pro Gly Thr Phe Ser Ala Ser Ser Ser Ser Glu Gln Cys Gln  
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Pro His Arg Asn Cys Thr Ala Leu Gly Leu Ala Leu Ile Val Pro Gly  
170 175 180 185

tct tcc tcc cat gac acc ctg tgc acc agc tgc act ggc ttc ccc ctc 627  
Ser Ser Ser His Asp Thr Leu Cys Thr Ser Cys Thr Gly Phe Pro Leu  
190 195 200

agc acc agg gta cca gga gct gag gag tgt gag cgt gcc gtc atc gac 675  
Ser Thr Arg Val Pro Gly Ala Glu Glu Cys Glu Arg Ala Val Ile Asp  
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ttt gtg gct ttc cag gac atc tcc atc aag agg ctg cag ccg ctg ctg 723  
Phe Val Ala Phe Gln Asp Ile Ser Ile Lys Arg Leu Gln Arg Leu Leu  
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cag gcc ctc gag gcc ccg gag ggc tgg gct ccg aca cca agg gcg ggc 771  
Gln Ala Leu Glu Ala Pro Glu Gly Trp Ala Pro Thr Pro Arg Ala Gly  
235 240 245

cgc gcg gcc ttg cag ctg aag ctg cgt ccg ccg ctc acg gag ctc ctg 819  
Arg Ala Ala Leu Gln Leu Lys Leu Arg Arg Arg Leu Thr Glu Leu Leu  
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ggg gcg cag gac ggg gcg ctg ctg gtg ccg ctg ctg cag gcg ctg cgc 867  
Gly Ala Gln Asp Gly Ala Leu Leu Val Arg Leu Leu Gln Ala Leu Arg  
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gtg gcc agg atg ccc ggg ctg gag ccg agc gtc cgt gag cgc ttc ctc 915

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936

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Thr Pro Thr Tyr Pro Trp Arg Asp Ala Glu Thr Gly Glu Arg Leu Val  
 35 40 45

Cys Ala Gln Cys Pro Pro Gly Thr Phe Val Gln Arg Pro Cys Arg Arg  
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Asp Ser Pro Thr Thr Cys Gly Pro Cys Pro Pro Arg His Tyr Thr Gln  
 65 70 75 80

Phe Trp Asn Tyr Leu Glu Arg Cys Arg Tyr Cys Asn Val Leu Cys Gly  
 85 90 95

Glu Arg Glu Glu Glu Ala Arg Ala Cys His Ala Thr His Asn Arg Ala  
 100 105 110

Cys Arg Cys Arg Thr Gly Phe Phe Ala His Ala Gly Phe Cys Leu Glu  
 115 120 125

His Ala Ser Cys Pro Pro Gly Ala Gly Val Ile Ala Pro Gly Thr Pro  
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Ser Gln Asn Thr Gln Cys Gln Pro Cys Pro Pro Gly Thr Phe Ser Ala  
 145 150 155 160

Ser Ser Ser Ser Ser Glu Gln Cys Gln Pro His Arg Asn Cys Thr Ala  
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Leu Gly Leu Ala Leu Ile Val Pro Gly Ser Ser Ser His Asp Thr Leu  
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Cys Thr Ser Cys Thr Gly Phe Pro Leu Ser Thr Arg Val Pro Gly Ala  
 195 200 205

Glu Glu Cys Glu Arg Ala Val Ile Asp Phe Val Ala Phe Gln Asp Ile  
 210 215 220

Ser Ile Lys Arg Leu Gln Arg Leu Leu Gln Ala Leu Glu Ala Pro Glu



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Phe Ser Ala Ser Ser Ser Ser Ser Glu Gln Cys Gln Pro His Arg Asn  
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tgc acg gcc ctg ggc ctg gcc ctc aat gtg cca ggc tct tcc tcc cat 480  
Cys Thr Ala Leu Gly Leu Ala Leu Asn Val Pro Gly Ser Ser Ser His  
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gac acc ctg tgc acc agc tgc act ggc ttc ccc ctc agc acc agg gta 528  
Asp Thr Leu Cys Thr Ser Cys Thr Gly Phe Pro Leu Ser Thr Arg Val  
165 170 175

cca gga gct gag gag tgt gag cgt gcc gtc atc gac ttt gtg gct ttc 576  
Pro Gly Ala Glu Glu Cys Glu Arg Ala Val Ile Asp Phe Val Ala Phe  
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cag gac atc tcc atc aag agg ctg cag cgg ctg ctg cag gcc ctc gag 624  
Gln Asp Ile Ser Ile Lys Arg Leu Gln Arg Leu Leu Gln Ala Leu Glu  
195 200 205

gcc ccg gag ggc tgg ggt ccg aca cca agg gcg ggc cgc gcg gcc ttg 672  
Ala Pro Glu Gly Trp Gly Pro Thr Pro Arg Ala Gly Arg Ala Ala Leu  
210 215 220

cag ctg aag ctg cgt ccg ccg ctc acg gag ctc ctg ggg gcg cag gac 720  
Gln Leu Lys Leu Arg Arg Arg Leu Thr Glu Leu Leu Gly Ala Gln Asp  
225 230 235 240

ggg gcg ctg ctg gtg ccg ctg ctg cag gcg ctg cgc gtg gcc agg atg 768  
Gly Ala Leu Leu Val Arg Leu Leu Gln Ala Leu Arg Val Ala Arg Met  
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Cys Arg Arg Asp Ser Pro Thr Thr Cys Gly Pro Cys Pro Pro Arg His  
35 40 45

Tyr Thr Gln Phe Trp Asn Tyr Leu Glu Arg Cys Arg Tyr Cys Asn Val  
50 55 60

Leu Cys Gly Glu Arg Glu Glu Glu Ala Arg Ala Cys His Ala Thr His  
65 70 75 80





|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Cys | Arg | Arg | Asp | Ser | Pro | Thr | Thr | Cys | Gly | Pro | Cys | Pro | Pro | Arg | His |     |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| tac | acg | cag | ttc | tgg | aac | tac | ctg | gag | cgc | tgc | cgc | tac | tgc | aac | gtc | 192 |
| Tyr | Thr | Gln | Phe | Trp | Asn | Tyr | Leu | Glu | Arg | Cys | Arg | Tyr | Cys | Asn | Val |     |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |
| ctc | tgc | ggg | gag | cgt | gag | gag | gag | gca | cgg | gct | tgc | cac | gcc | acc | cac | 240 |
| Leu | Cys | Gly | Glu | Arg | Glu | Glu | Glu | Ala | Arg | Ala | Cys | His | Ala | Thr | His |     |
|     | 65  |     |     |     | 70  |     |     |     | 75  |     |     |     |     |     | 80  |     |
| aac | cgt | gcc | tgc | cgc | tgc | cgc | acc | ggc | ttc | ttc | gcg | cac | gct | ggt | ttc | 288 |
| Asn | Arg | Ala | Cys | Arg | Cys | Arg | Thr | Gly | Phe | Phe | Ala | His | Ala | Gly | Phe |     |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| tgc | ttg | gag | cac | gca | tgc | tgt | cca | cct | ggt | gcc | ggc | gtg | att | gcc | ccg | 336 |
| Cys | Leu | Glu | His | Ala | Ser | Cys | Pro | Pro | Gly | Ala | Gly | Val | Ile | Ala | Pro |     |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |     |
| ggc | acc | ccc | agc | cag | aac | acg | cag | tgc | cag | ccg | tgc | ccc | cca | ggc | acc | 384 |
| Gly | Thr | Pro | Ser | Gln | Asn | Thr | Gln | Cys | Gln | Pro | Cys | Pro | Pro | Gly | Thr |     |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |
| ttc | tca | gcc | agc | agc | tcc | agc | tca | gag | cag | tgc | cag | ccc | cac | cgc | aac | 432 |
| Phe | Ser | Ala | Ser | Ser | Ser | Ser | Ser | Glu | Gln | Cys | Gln | Pro | His | Arg | Asn |     |
|     |     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| tgc | acg | gcc | ctg | ggc | ctg | gcc | ctc | aat | gtg | cca | ggc | tct | tcc | tcc | cat | 480 |
| Cys | Thr | Ala | Leu | Gly | Leu | Ala | Leu | Asn | Val | Pro | Gly | Ser | Ser | Ser | His |     |
|     | 145 |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |     |
| gac | acc | ctg | tgc | acc | agc | tgc | act | ggc | ttc | ccc | ctc | agc | acc | agg | gta | 528 |
| Asp | Thr | Leu | Cys | Thr | Ser | Cys | Thr | Gly | Phe | Pro | Leu | Ser | Thr | Arg | Val |     |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |     |
| cca | gga | gct | gag | gag | tgt | gag | cgt | gcc | gtc | atc | gac | ttt | gtg | gct | ttc | 576 |
| Pro | Gly | Ala | Glu | Glu | Cys | Glu | Arg | Ala | Val | Ile | Asp | Phe | Val | Ala | Phe |     |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |
| cag | gac | atc | tcc | atc | aag | agg | ctg | cag | cgg | ctg | ctg | cag | gcc | ctc | gag | 624 |
| Gln | Asp | Ile | Ser | Ile | Lys | Arg | Leu | Gln | Arg | Leu | Leu | Gln | Ala | Leu | Glu |     |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     |
| gcc | ccg | gag | ggc | tgg | gct | ccg | aca | cca | agg | gcg | ggc | cgc | gcg | gcc | ttg | 672 |
| Ala | Pro | Glu | Gly | Trp | Ala | Pro | Thr | Pro | Arg | Ala | Gly | Arg | Ala | Ala | Leu |     |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |     |
| cag | ctg | aag | ctg | cgt | cgg | cgg | ctc | acg | gag | ctc | ctg | ggg | gcg | cag | gac | 720 |
| Gln | Leu | Lys | Leu | Arg | Arg | Arg | Leu | Thr | Glu | Leu | Leu | Gly | Ala | Gln | Asp |     |
|     | 225 |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |     |
| ggg | gcg | ctg | ctg | gtg | cgg | ctg | ctg | cag | gcg | ctg | cgc | gtg | gcc | agg | atg | 768 |
| Gly | Ala | Leu | Leu | Val | Arg | Leu | Leu | Gln | Ala | Leu | Arg | Val | Ala | Arg | Met |     |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |     |
| ccc | ggg | ctg | gag | cgg | agc | gtc | cgt | gag | cgc | ttc | ctc | cct | gtg | cac |     | 813 |
| Pro | Gly | Leu | Glu | Arg | Ser | Val | Arg | Glu | Arg | Phe | Leu | Pro | Val | His |     |     |

260

265

270

tgatcctggc cc

825

&lt;210&gt; 8

&lt;211&gt; 271

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 8

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Arg Leu Val Cys Ala Gln Cys Pro Pro Gly Thr Phe Val Gln Arg Pro  
20 25 30

Cys Arg Arg Asp Ser Pro Thr Thr Cys Gly Pro Cys Pro Pro Arg His  
35 40 45

Tyr Thr Gln Phe Trp Asn Tyr Leu Glu Arg Cys Arg Tyr Cys Asn Val  
50 55 60

Leu Cys Gly Glu Arg Glu Glu Glu Ala Arg Ala Cys His Ala Thr His  
65 70 75 80

Asn Arg Ala Cys Arg Cys Arg Thr Gly Phe Phe Ala His Ala Gly Phe  
85 90 95

Cys Leu Glu His Ala Ser Cys Pro Pro Gly Ala Gly Val Ile Ala Pro  
100 105 110

Gly Thr Pro Ser Gln Asn Thr Gln Cys Gln Pro Cys Pro Pro Gly Thr  
115 120 125

Phe Ser Ala Ser Ser Ser Ser Ser Glu Gln Cys Gln Pro His Arg Asn  
130 135 140

Cys Thr Ala Leu Gly Leu Ala Leu Asn Val Pro Gly Ser Ser Ser His  
145 150 155 160

Asp Thr Leu Cys Thr Ser Cys Thr Gly Phe Pro Leu Ser Thr Arg Val  
165 170 175

Pro Gly Ala Glu Glu Cys Glu Arg Ala Val Ile Asp Phe Val Ala Phe  
180 185 190

Gln Asp Ile Ser Ile Lys Arg Leu Gln Arg Leu Leu Gln Ala Leu Glu  
195 200 205

Ala Pro Glu Gly Trp Ala Pro Thr Pro Arg Ala Gly Arg Ala Ala Leu  
210 215 220

Gln Leu Lys Leu Arg Arg Arg Leu Thr Glu Leu Leu Gly Ala Gln Asp  
225 230 235 240

Gly Ala Leu Leu Val Arg Leu Leu Gln Ala Leu Arg Val Ala Arg Met

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 Pro Gly Leu Glu Arg Ser Val Arg Glu Arg Phe Leu Pro Val His  
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<220>  
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<210> 10  
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<400> 12  
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37